Weather

4-4 The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)

4.4.5 Carry out procedures for data collecting and measuring weather conditions (including wind speed and direction, precipitation, and temperature) by using appropriate tools and instruments.
Taxonomy level: 3.2-C Apply Procedural Knowledge

Previous/Future knowledge: Only the anemometer is a new instrument to this study of weather. In 2nd grade (2-1.2, 2-3.4), students used a thermometer to measure temperature, a rain gauge to measure precipitation, and a windsock or wind vane to determine wind direction. Wind speed was determined by using the Beaufort scale in 2nd grade (2-3.4). In 6th grade (6-4.5), students will use appropriate instruments to collect weather data (including wind speed and direction, air temperature, humidity, and air pressure).

It is essential for students to carry out procedures for collecting and measuring weather conditions in order to understand daily weather conditions. Weather data must be collected and read accurately using appropriate instruments:

Wind Speed
- Wind speed is measured with an *anemometer* as the wind causes the cups to spin.
- As the cups spin, the anemometer counts how many times they spin in a given period of time.
- The more turns, the faster the wind speed.

Wind Direction
- Wind direction is determined with a *wind (weather) vane*.
- Wind direction is described by the direction from which the wind is blowing.

Precipitation
- Amount of precipitation is measured in a *rain gauge*.
- Markings on the side show how much rain has fallen.
- A rain gauge measures rainfall in inches.

Temperature
- Air temperature is measured using a *thermometer*.
- The scale may be read in degrees Fahrenheit or Celsius.

It is not essential for students to make any of these instruments (but in some cases they can), or to use a sling psychrometer, barometer, or hygrometer.

Assessment Guidelines:
The objective of this indicator is to *use* instruments to collect and measure weather data; therefore, the primary focus of assessment should be to apply a procedure to the tool that would be needed to measure wind speed, wind direction, precipitation amounts, and air temperature. However, appropriate assessments should also require students to *identify* weather instruments that measure certain weather conditions; *interpret* the reading on the instrument for accurate data; or *interpret* the scale on a thermometer or rain gauge.